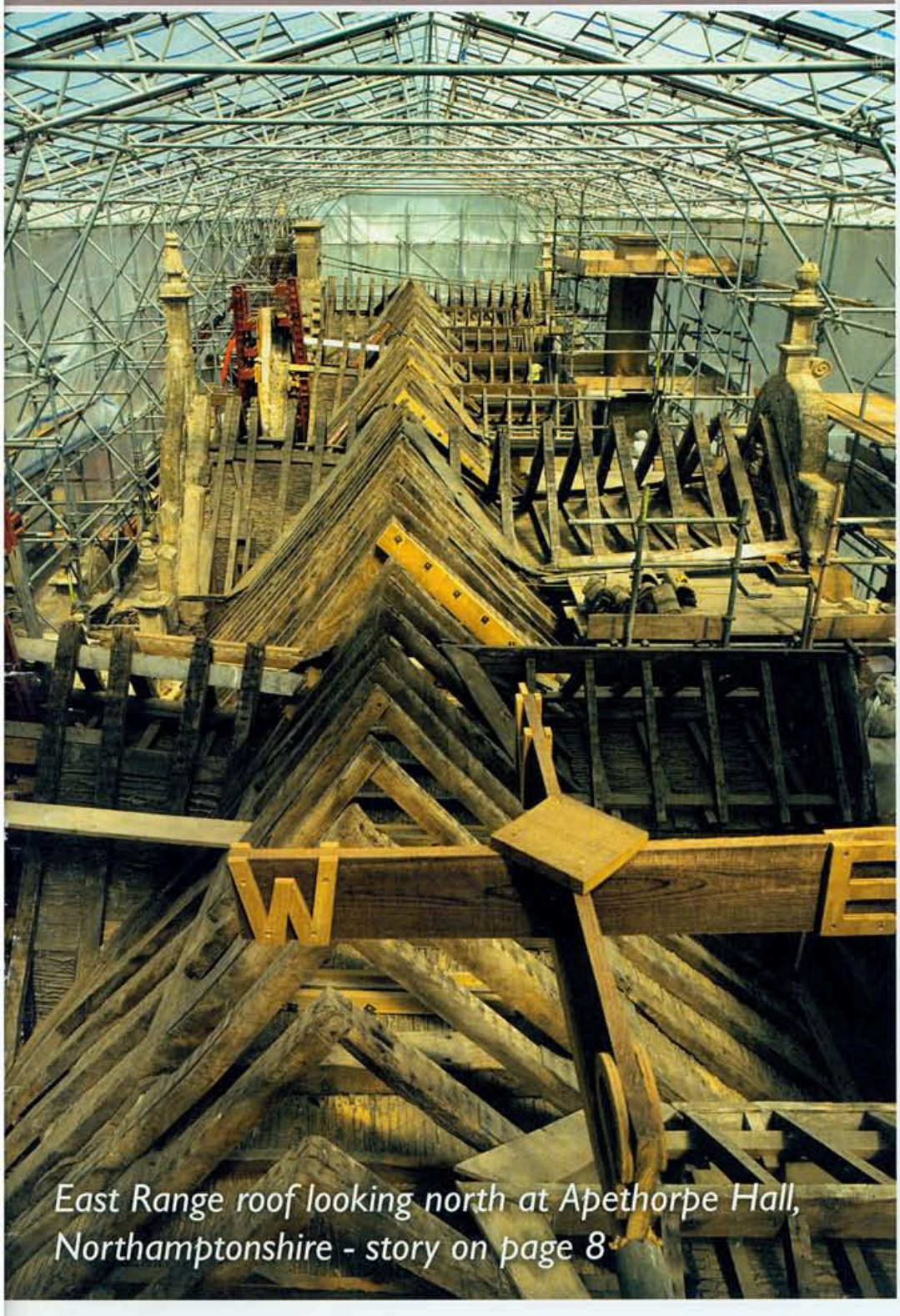
NEWSLETTER OF THE ENGLISH HERITAGE RESEARCH DEPARTMENT

RESEARCH NEWS



East Range roof looking north at Apethorpe Hall, Northamptonshire - story on page 8

Inside this issue...

Introduction 2

THE APETHORPE HALL RESEARCH PROGRAMME

The research programme 3

Architectural investigation and research 6

IGS team's involvement 10

Understanding the Jacobean ceilings 16

The recording of the masons' marks 19

Historic interiors investigation & architectural paint research ... 23

Landscape analysis around Apethorpe Hall 26

Dendrochronology 30

Geophysical survey 32

NEW DISCOVERIES AND INTERPRETATIONS

Ralph Treswell's map of Hailes Abbey 35

A fluid landscape: lead mining and river systems in the North Pennines 38

A late medieval/renaissance garden at Ashby de la Zouch, Leicestershire 40

NOTES & NEWS 44

NEW PUBLICATIONS & RESEARCH DEPARTMENT REPORTS LIST 48

ENGLISH HERITAGE

NUMBER 5
WINTER 2006-07
ISSN 1750-2446

The Research Programme at Apethorpe Hall

Extensive multidisciplinary study, carried out within a major repair programme, has uncovered a wealth of new information on the history of this important country house and its broader landscape context.

Apethorpe Hall in Northamptonshire is a Grade I listed country house of exceptional importance. It dates from the second half of the 15th century and is located on the outskirts of the village of Apethorpe in the historic Rockingham Forest. The house has suffered from twenty years of neglect resulting in its inclusion on the English Heritage Buildings at Risk register. This in turn led to its recent compulsory purchase by the Department of Culture Media and Sport on behalf of English Heritage.

Research Department staff and other specialists have been afforded unfettered access to the house during 2005-6 enabling a fully integrated multi-disciplinary research programme to be undertaken. The research has been carried out in conjunction with an English Heritage managed repair programme to the south and east ranges of the house, ongoing work that has revealed important new information about the architectural history of the house. This repair programme is scheduled for completion in 2008, when the house and grounds will be marketed with the aim of attracting a buyer capable of undertaking further repairs and other works in a sensitive manner and generally securing a sustainable future for the property. Central to the decision making process in this regard will be the enhanced understanding of the significance of the house and its landscape that has emerged out of the research programme.

A potted history of the house and the range of primary and secondary sources utilised by the research team is provided by Kathryn Morrison in her piece on Architectural Investigation and Research. In particular, a great deal of new research material highlighting the significance of the state apartment at Apethorpe Hall was contained in the English Heritage advice to the Secretary of State and presented at the Public Inquiry relating to the compulsory purchase action in 2004. This work established without doubt that Apethorpe Hall was virtually unrivalled in receiving more royal visits than nearly all other surviving great houses of the period outside of the royal palaces. Further investigation of the fabric of the house as part of the 2005-6 research programme combined with, among other things, some highly-targeted opening up as part of the repairs, dendrochronology, geophysical survey, landscape analysis, measured survey and further documentary research has greatly enhanced our understanding of the historical development and significance of the house and its landscape.

Damian Grady © English Heritage. NMR 23765/09

An oblique view of Apethorpe Hall taken from the south east in 2004

Table of masons' marks at Apethorpe Hall

scaffolding currently covering the east and south ranges. Over 850 instances of approximately 60 different marks were drawn and photographed; their precise location and orientation was recorded; the data was encoded, using a format derived from the number of strokes used to cut the mark, and entered onto a database. Analysis of this data has produced evidence of phasing, and of changes in the organisation and composition of the workshop. For example, by plotting the distribution of marked stones throughout the building, and examining variations in the form and position of individual marks, we can suggest that work began with the south and east walls of the projecting south end of the east range, possibly including the cellar in that position. This would have proved less disruptive to the existing building than commencing with any other part of the new work. Stone for the south range displays greater variation in marks than that of the east range, and was cut over a longer period: work may have been less continuous here, where an existing structure complicated the building process.

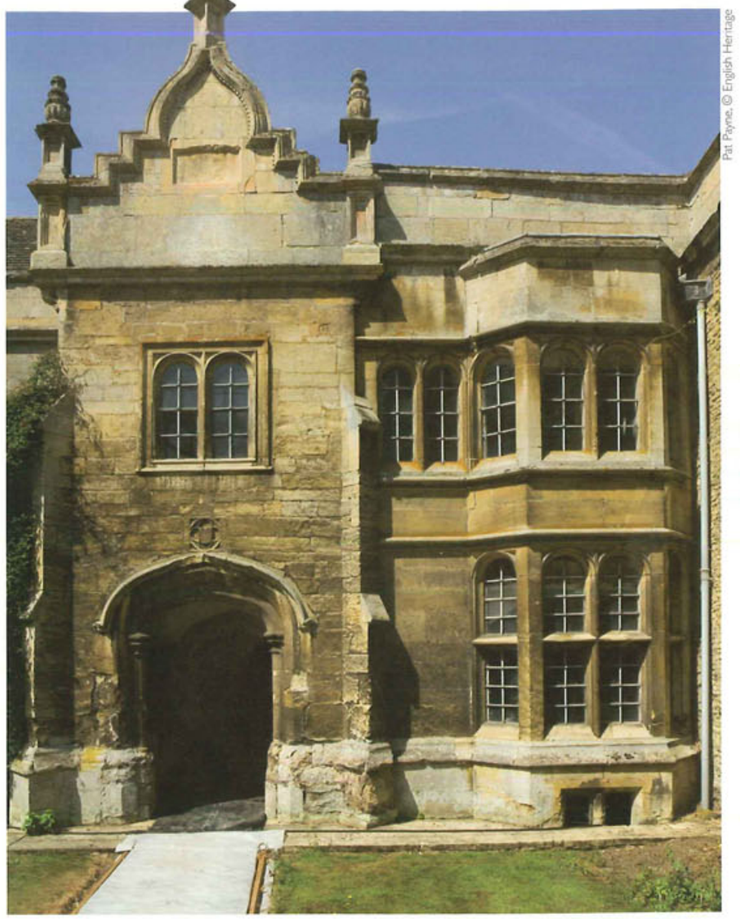
The marks reveal specialisation amongst the masons, possibly reflecting the hierarchical structure of the Apethorpe workshop. While some masons worked exclusively on simple squared blocks, others worked mainly on window jambs, and a small group of three masons produced moulded doorways and stone for fireplaces. In the latter instance, it is not possible to be sure if the same men were responsible for the figural sculpture decorating the fireplaces, as the marks never occur on the same blocks as the carving. It was this elite group of masons that, with other members of the team, cut the stone for the Mildmay Chapel, built in 1621 on the south side of Apethorpe church, to house a monument which has been attributed to the court sculptor Maximilian Colt. There can be no doubt that, on occasion, masons from this group displayed their marks with deliberate prominence, as a form of 'signature'. In the case of the fireplaces, one wonders how they would get away with 'signing' the work, if they were not also the sculptors. This clearly merits further consideration.

At the simplest level, the profusion of masons' marks on stonework known to date from 1622-24 has made it possible to identify other work done on the house at that time. For example, three marks belonging to the 1622-24 workshop appear on

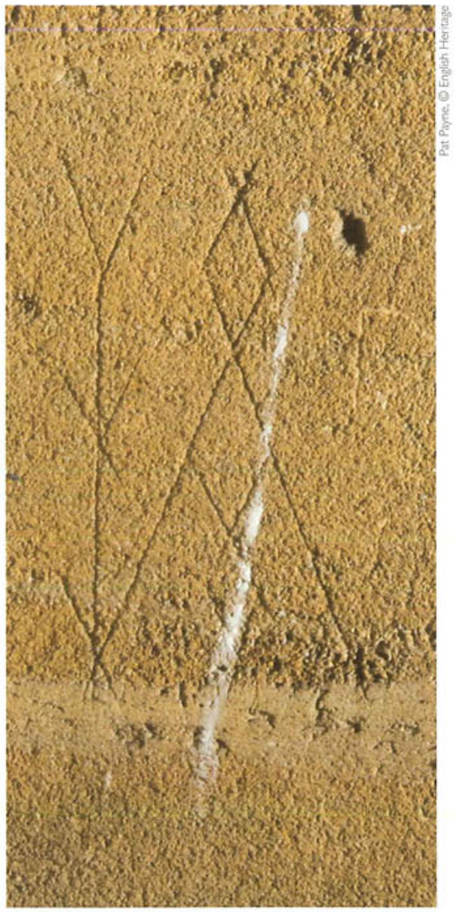
The chimneypiece in the Long Gallery, photographed by RCHME in 1978. The statue of King David playing the harp was damaged by vandals before English Heritage acquired the site

Two carefully positioned masons' marks (2t7) on the underside of impost blocks on the east range of Apethorpe Hall

A mason's mark (13h1) on the Withdrawing Chamber overmantle



Pat Payne. © English Heritage



Pat Payne. © English Heritage

The bay window to the right of the hall porch. Once dated to the middle of the 16th century, masons' marks have shown that this was built in the 1620s.

A complex mason's mark (14fa2) on the jamb of the doorway of the Spencer Room, at the south end of the east range of Apethorpe Hall

the windows of a two-storey bay positioned to the north of the hall, within the main courtyard. Previous accounts of the house have always dated this feature to the middle of the 16th century. Now, we can be certain that it was erected in or around 1622-24. Stylistically, it is very different from the new east range: it appears to have been built to balance an older window, at the opposite end of the same façade, and as such was deliberately old-fashioned in style.

Finally, an analysis of the masons' marks at Apethorpe has allowed the research team to establish relationships with other buildings, including Apethorpe church (Mildmay Chapel, 1621; tower arch, 1633), Kirby Hall (staircases and doorways, 1575-91), Stibbington Hall (porch, 1625), Hunstanton Hall (porch 1616-18; gateway to forecourt, 1623), Blickling Hall (1619-23) and elsewhere. From this, there seems little doubt that the workshop in question was that of Thomas Thorpe of King's Cliffe (d. 1626/27), whose involvement is documented at both Blickling and Hunstanton, and whose father's involvement is documented at Kirby. The intriguing possibility remains that Thorpe's personal mark will one day be identified.

Forthcoming publications by Jennifer Alexander, and Kathryn Morrison will explore the significance of the connections between these structures, and the involvement of the Thorpe team, in much greater depth, and will present a fuller account of the methodology involved in recording and analysing masons' marks on this class of buildings.

Jennifer S Alexander and Kathryn A Morrison

THE APETHORPE HALL RESEARCH PROGRAMME

Historic interiors investigation and architectural paint research

The search for long lost hangings, missing paint and Jacobean splendour……

The historic interiors research builds on and contributes to the structural and historical analysis of Apethorpe Hall. The main aim of the preliminary phase of the historic interiors research was to clarify the decoration of the state apartment rooms carried out in the 1620s at the command of James I. Further research campaigns will be designed to investigate other areas of the house to clarify earlier phases and the development and use of the house until the late 20th century. This information is required not only to provide an understanding of the original use, fitting out and decoration of the apartment but to inform decisions on the future conservation management and representation of these principal rooms.

At the outset of the investigation an outline A4 room chart was prepared for each of the main areas which integrated the examination of the surviving fabric with secondary sources such as inventories, plans and photographs. Each chart was updated as the research programme progressed and continues to be a valuable working tool for recording alterations and applied finishes. During the late 16th and early 17th centuries fabric hangings were the primary wall decoration in high status rooms, and this was certainly the case at Apethorpe.

© English Heritage

Stone architrave King's Chamber

Cross-section of a sample from stone architrave x100. First decoration: lead white oil paint tinted with smalt applied over white undercoats and a red iron oxide primer

An inventory drawn up in 1629 lists the numerous tapestries and hangings which were the main decorative element of the wall faces of the principal rooms, complemented by curtains, upholstered furniture, cushions and carpets and indicates the increasing opulence and luxury of the state rooms as they near the King's Chamber. The provision of a Turkish carpet and refinements such as matching upholstery *'sutable to'* and pairs of curtains (possibly the earliest recorded indication of the use of such curtains), reveal Fane's wealth and his awareness of contemporary fashions. In contrast to the profusion of colour characteristic of Tudor and Elizabethan interiors, Jacobean tastes were developing an appreciation of more restrained and co-ordinated colour schemes. The Apethorpe research project therefore provides a rare opportunity to correlate the results of a structural investigation with an analysis of detailed 17th century inventory to provide 'a virtual' refurnishing of the state apartment.

Wooden architrave of Duke's Chamber

Although the state apartment retains its 1620s ceilings, chimneypieces and much of its floor-plan, the wall faces have been subject to extensive and repeated alteration. Apart from the panelling in the Long Gallery nothing of the original Jacobean panelling and wall plaster was thought to have survived. The ornate chimneypieces which dominate each room may have been painted and gilded, but have been subjected to a rigorous paint removal campaign, and to date no trace of any 17th-century surface decoration has been discovered. Ornate decorative plaster ceilings such as those found at Apethorpe were commonly painted white except in certain high status rooms where they were, at great cost, sometimes painted blue and even gilded. But investigation of the ceilings at Apethorpe concluded that these, like the chimneypieces, had been thoroughly cleaned. The existing decorations have been applied over 20th-century repairs. The only traces of early 17th-century decorative finishes to survive were found on elements protected by later 18th-century additions which were revealed during the architectural investigation.

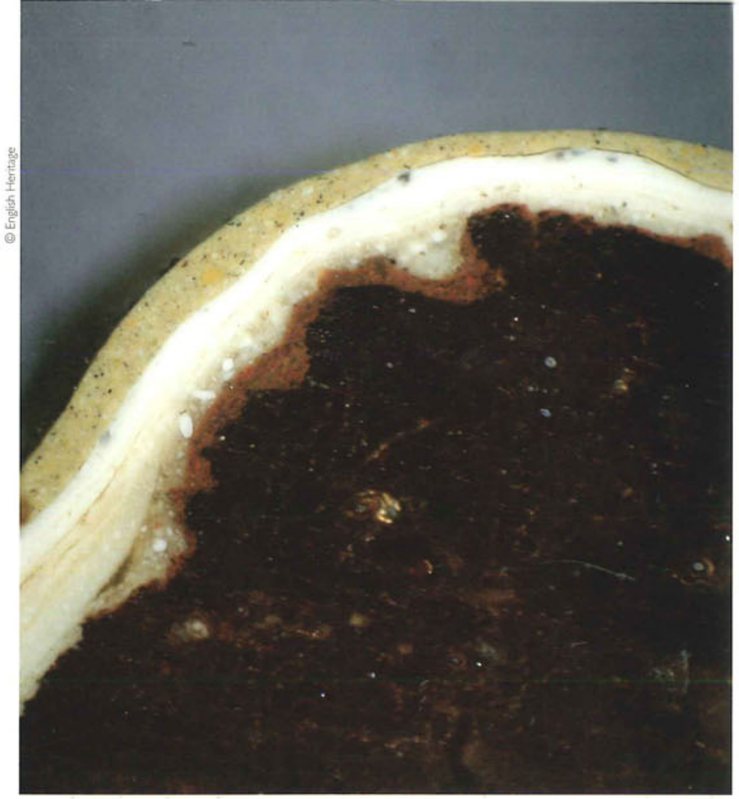
For example, traces of a white distemper, possibly the original scheme applied in 1622-24, survive on fragments of the original Great Chamber and Withdrawing Room ceilings which lie behind the existing coving, applied *c*1740, and the original plaster of a window reveal in the Duke's Closet and an entrance to the roof walk.

Until the discovery of the passage from the King's Chamber to the Duke's Closet, it seemed that, due to the extensive paint removal carried out in the previous century, there was little scope for architectural paint research. However this small area, completely blocked and forgotten prior to this phase of works, retains early painted decoration and provides a rare insight into the decorative conventions of the period. Samples removed from the stone architrave in the King's Chamber and the carved wooden architraves of the doorways into the Duke's Chamber are undergoing detailed analysis. These indicate that both elements were painted white tinted with smalt (a coarse blue pigment used in the seventeen century) over a red primer. Further work will also attempt to decipher the traces of a banded decorative scheme which frames the eastern entrance to the passage from the Duke's Closet. The presence of wooden pegs may suggest that an applied architrave (now lost) may have been fixed as an additional embellishment.

Research continues in the Long Gallery. Close examination of the original panelling suggests that it, too, was subject to the rigorous paint stripping campaign possibly carried out during the early twentieth century when damaged sections of panelling were replaced with fibrous plaster moulds. During the 17th century, oak panelling was routinely grained in imitation of more expensive hardwoods such as walnut. Until recently only one small fragment of a painted decoration had been found on the panelling, but the discovery of two small armorial badges painted on the plaster behind the panelling may provide more clues about its embellishment. These may have been trials for a decorative stencil motif which was applied in the centre of the panel beds.

The lost hangings and the stripped paint and gold are gone forever - but the current investigation helps us conjure up images of the splendour of the sumptuous interiors James I would have enjoyed when he returned to Apethorpe in 1624.

Helen Hughes



Cross-section of a sample from the wooden architrave x100. First decoration: lead white oil paint tinted with smalt applied over white undercoats and a red iron oxide primer

General view of original decoration of doorway from the King's Chamber. This has been decorated with painted banding. The wooden peg suggests that an applied architrave had been added to the doorway

THE APETHORPE HALL RESEARCH PROGRAMME

Landscape analysis around Apethorpe Hall

Analysis shows the impact of Apethorpe Hall on the wider local landscape.

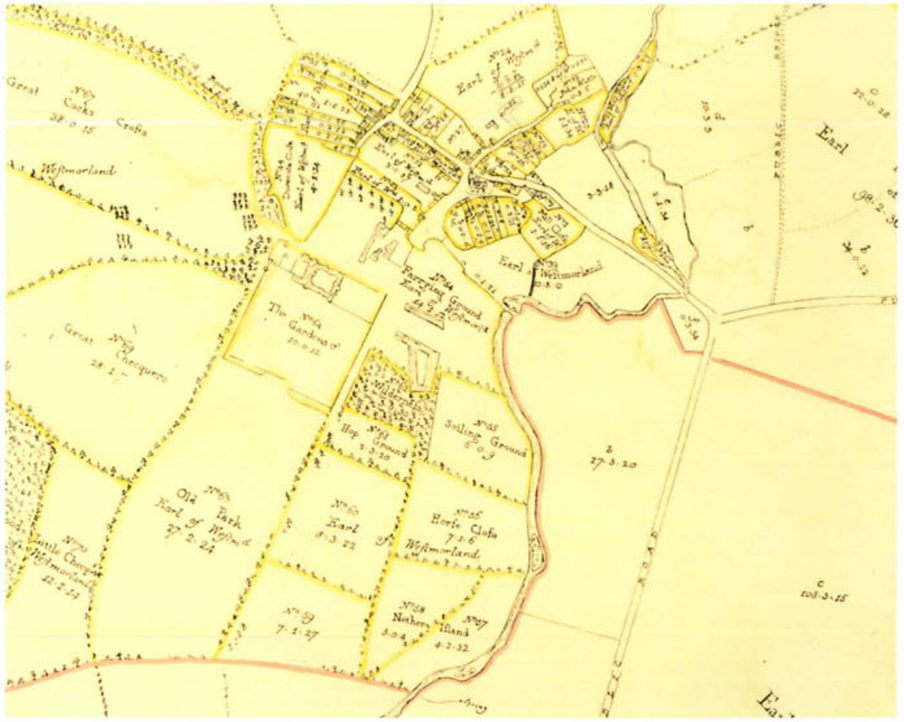
The Hall and village are located on the north-eastern fringe of the Rockingham Forest, an area of Saxon woodland that was formalised as a hunting landscape soon after the Conquest and which grew in size during the 11th and 12th centuries. The placename may well be a corruption of *Api's thorp* – the village or hamlet belonging to Appi. The Scandinavian origin of the placename suggests that the village was already long established at the time of Domesday.

The morphology of the village at this time is unknown but it may well have included settlement and a church. The earliest surviving fabric of the church of St Leonard dates to the late 15th and early 16th centuries but a 12th-century fragment survives and it may well be that a pre-Conquest timber antecedent existed on the same site. A map of *c* 1641 depicts, in a highly schematised fashion, a nucleated village articulated along a number of thoroughfares, with the church sitting at a crossroads. On this map, Apethorpe Hall is shown clearly in its present location with an intimate 'Litle Parke' to the south. A double row of settlement (Town Street) extended towards it from the north, partly mirrored by a parallel row to the west, known today as Laundry Lane.

One of the most basic questions we have asked is 'how old is the village'? Linked to this are questions about the earliest date for the current Hall – is there a precursor underneath/within it, or does it lie buried in the village? Further work is needed but it is worthwhile speculating that the earliest manor at Apethorpe lay at some distance from the present site, perhaps close to the church.

© PRO MPI/314

Extract of a map of *c* 1641. This plan shows the village and Hall set within its wider landscape context. Two parks are named. 'Litle Park' on the southern periphery of the Hall was established well before 1551, and 'Newe Park', detached and some distance to the south-west first mentioned in 1543. Within this there are at least two lodges, one of which, on Morehay Lawn, may well be the site of the 'King's Standing' used as a vantage point during the early 17th century to observe the hunt



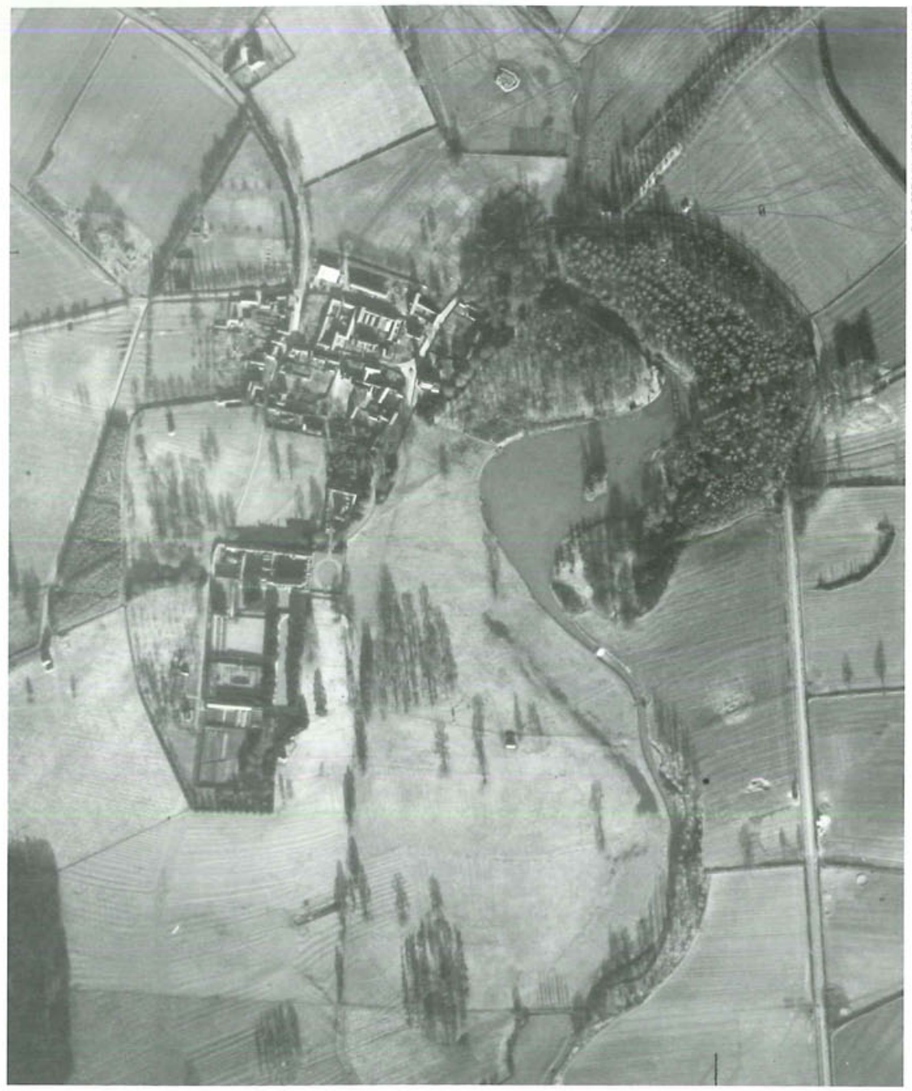
Extract of Enclosure map of 1778.
This map shows in some detail the layout of the village, Hall and gardens. A fairly well-ordered morphology is visible and this may well be conditioned by the underlying field system. Traces of landscape gardens can be seen to the east of the Hall, and the church is flanked to the south by a large oval enclosure, possibly an early feature in the Apethorpe landscape and of Early-Middle Saxon date

On the 1778 enclosure map the church figures prominently, but the route from the church to the Hall has been altered substantially; buildings and closes have been removed to create an enclosure that houses the 'Manor House', built in 1711 for the Earl of Westmorland's agent Maurice Berkeley. Intriguingly, on this plan, there is a wide area in front of the Manor House in some ways reminiscent of a village green. The main route through the village extends from this open area to the west across the river. To the north and flanking the green on the west, is a large oval enclosure sub-divided by a series of roughly parallel strips. The juxtaposition of crossroads, church, and mill suggest that this is the heart of the ancient village of Apethorpe and that the enclosure may well be an early, Saxon, element in this. Nothing now survives of this enclosure.

The establishment of the village and its manorial focus in the Early Saxon period, itself represented a substantial shift in the immediate post-Roman landscape. A Roman villa, *c* 500m to the south of the Hall of 1st to the 4th century AD date, is the likely precursor to the manorial settlement at Apethorpe.

The establishment of the Hall and its associated gardens in the 15th century fossilised the physical separation of the manor and its village. The Hall and gardens adhere to a fairly geometrical layout and consist of a range of buildings with square and rectangular compartments to the south. This layout is evidently influenced by pre-existing elements of the open field system. On the ground all trace of the fields have been removed but aerial photography has been instrumental in recovering this lost landscape. The 1947 vertical aerial photograph is an excellent example of this. Ridge-and-furrow cultivation is visible on either side of a prominent trackway, evidently a very early and influential route through the landscape. The modern approach from King's Cliffe to Apethorpe follows it, and it clearly continued through the village to the south for a further 1.5km. Ploughing continued in this area until the late 17th century but has a very much earlier origin, probably superimposed on Romano-British fields located close to the villa.

Links between the Hall and the wider landscape are also clear. The *c* 1641 map provides excellent detail on the rural pursuits of hunting, shooting, and fishing especially in the area of the 'Newe Parke', established on higher ground to the south-west of the Hall in existence by 1543. Repeated episodes of expansion took place throughout the 16th and 17th centuries and within its bounds there is a substantial lodge and associated pond. The incorporation of 'greene' areas,



Extract of aerial photograph. Aerial photography has been instrumental in allowing us to assess the importance of relict landscape features in the landscape around Apethorpe. On this photograph, Blomfield's early 20th-century lake is prominent on the east side of the Hall. To the south and west, the remains of ridge-and-furrow cultivation can be seen spreading out on either side of a trackway that extends in a loop from the north (top left of photograph). The trackway extends to the south of the Hall for some distance and is likely to have been an important element in the pre-Hall landscape and appears to provide an axial cue for the development of the Hall and its garden compartments

such as 'Apthorp Greene' and 'Goose Greene', provided suitable arenas during the hunt, and here it is plausible that the remains of the (by then deserted) village of Hale, were included, perhaps as a nostalgic and noteworthy feature. It is worth speculating that 'Morehaie Launde' (Morehay Lawn) may well have been established for horse racing. The 'King's Standing' was identified as the spot where, during the reigns of James I and Charles I, people would gather to view the racing in adjacent fields. No trace of this vantage point survives but the *c* 1641 map depicts an open courtyard building, probably the 'King's Standing', on the northern periphery of the 'Launde'.

More formal gardens were created around the house in the 17th and 18th centuries. To the east of the Hall the Great Pond, was used for boating as early as 1659. The Enclosure map of 1778 shows a formal layout of ponds aligned with the house here, in a field called 'Farrying Ground'. In this general area there are at least two small tree ring enclosures, another lies 500m to the south, and they were intended to act as eye-catchers when viewed from the Hall. It may well be that the large tree ring hosting a Lebanon cedar on the lawn adjacent to the former 'Bowling Green', identified as such *c* 1720-40, on the south side of the Hall, is contemporary with this phase of garden activity. One of the most significant features of the 18th century designed landscape is the Dovecote, built on rising ground 200m to the north-west of the Hall, and part of the 7th Earl's embellishment of the estate.

In the late 18th century additional work was carried out including a refashioning of the park to the west of the private gardens. Here, on the edge of the former orchard, is a small detached garden that consisted of a rectangular pond, with the domed remains of a red brick ice-house at its north-eastern corner. The pond was fed by a spring 120m to the west, water flowing along a sharply defined channel furnished with a brick-built culvert. To the south of the pond there is a serpentine pathway, still traceable on the ground, leading in a loop through a small copse.

Following the purchase of the estate in 1904 by Leonard Brassey, the gardens and parts of the Hall were remodelled by Reginald Blomfield over a period of several years. A lake was created in 1908 to the east of the Hall and alterations as part of this removed elements of the earlier designed landscape including much of the 'Farrying Ground'.

Apethorpe today is a village much like any other, containing a mix of building types with a veneer of recent development. Its appearance, however, evidently masks a long and complex history. Archaeological investigation in the village as well as the landscape surrounding Apethorpe, incorporated analysis of documentary material and early cartographic sources as well as aerial photographic interpretation and ground-based reconnaissance. What we arrive at, now, is an understanding of the Hall and its setting that is both unexpected and exciting in its detail, and illustrates the 'connectedness' of the landscape at Apethorpe in a way that was previously underestimated.

Dave McOmish

The Dovecote.
One of the most significant features of the designed landscape is the Dovecote, built in 1739/40 on rising ground 200m to the north-west of the Hall, and part of the 7th Earl's embellishment of the estate. The Dovecote, with its distinctive ogee roof profile, was designed as an eye-catcher or feature in the park and is visible across much of the southern and eastern areas of the garden

THE APETHORPE HALL RESEARCH PROGRAMME

Dendrochronology

The dating of timbers within the buildings confirms established phasing and opens up new questions.

An extensive dendrochronology programme, commissioned by the Scientific Dating Team, is being undertaken by the Nottingham Tree-Ring Dating Laboratory, with technical support and quality assurance from Cathy Tyers at Sheffield University.

Sampling has proceeded in conjunction with architectural research, as areas have become available for investigation. Over 220 samples have been obtained from oak timbers in the main house complex, with a further series of over 40 samples from the stables and granary complex to the north-east. So far 175 timbers have been successfully dated, representing seven periods of tree-felling from the late-15th to mid-18th centuries, all of which can be linked to documented periods of construction or remodelling. It has provided independent confirmation and clarification of the extent of previously identified building phases, and has led to some alternative interpretations.

The precision of dating varies according to the number of datable timbers from an area and how many, if any, retain the final growth ring (bark edge), which gives the precise year of felling. If at least some of the outer band of rings (sapwood) exists, a felling date range can be established. Usually construction (using green timber) followed very shortly after felling, but with large scale construction short-term stockpiling and reuse of timber is to be expected, potentially complicating the interpretation of dendrochronological results. Clear evidence has been found of multiple felling dates in several of the areas investigated at Apethorpe.

Analysis has shown that timbers from the roofs of the cross wing and parlour wing in the hall range, and the roof of the west range, are broadly coeval, and date to the late-15th century. This was expected for the cross wing and the west range, but it had been thought that the parlour wing roof was rebuilt in the 17th century. As only one timber from this group has bark edge (dated to 1476), we cannot say whether the roofs are precisely coeval or built in a particular order. It is impossible to relate the construction of these roofs to that of the hall, which was built using timbers from young, fast-grown trees (sequences of fewer than about 50 rings can rarely be dated reliably).

There is widespread evidence of felling in the mid-16th century, associated with the extensive works undertaken by Sir Walter Mildmay. Timbers of this date were found in the north and hall ranges of the main house, the granary and the stables, but in the south range, where the state apartment were created at this time, there were only three dated timbers of this period, in the roof of the extreme west end. This roof also incorporates at least two timbers associated with the major remodelling by Sir Francis Fane, thought to have started in 1622. Similar results from the roof of the 'vice' adjoining the gatehouse in the north range, suggest either that earlier timbers were reused in a new 17th century roof, or that remodelling included the insertion of later timbers into an existing roof.

The east and south ranges show widespread evidence of felling activity associated with Sir Francis Fane's works. Some of this pre-dates the 1622 order by the King granting trees from the Royal Forest to enlarge the house, suggesting that the formal document confirmed an existing informal agreement. A trimmer beam in the east range, now hidden under floorboards, was felled in 1620, and may therefore mark the position of the original staircase. A precise felling date of 1621 from a timber in the roof of the south range, and a date-range of 1613–30 from another, confirm that this roof was rebuilt at about the same time as the east range was built. The dated timber work associated with the state apartment is clearly all from this period of reconstruction.

An unexpected phase of felling dates to the latter part of the 17th century. Several precise felling dates between 1682 and 1692 have been produced for timbers from the matted passage in the hall range. This passage connects rooms in the north range with the principal lodgings on the garden front, and was expected to date to the first half of the 16th century, but none of the dated timbers can be of this date. The implication is that the matted passage may have been partially rebuilt in the last decade of the 17th century.

The final major felling period dates to the first quarter of the 18th century. The documented 1704/5 rebuilding of the kitchen in the north range is reflected in early 18th-century felling date ranges for many of the kitchen roof timbers. A series of precise felling dates between 1706 and 1716 have been produced for timbers from the Orangery, which accords well with the documented construction date of 1718-19. Away from the main house complex, felling dates obtained from the granary complex indicate a period of broadly coeval activity.

The most recent timbers so far dated are two joists in the South Range Drawing Room, both of which appear likely to date to the mid-eighteenth century, and one of which was felled in 1740, coinciding with the Palladian reconstruction of the north elevation of this range.

Further sampling will be undertaken to address additional questions that have arisen during the dendrochronological and architectural research. Once completed, in addition to the independent dating evidence for the architectural history of Apethorpe Hall, it may be possible to examine the data more closely to reveal any changes in timber resources through time.

John Meadows and Cathy Tyers

Left: The roof of the Granary, dendro-dated to the 1560s.

Right: Robert Howard of the Nottingham Tree-Ring Dating Laboratory at work on the roof of the East Range

Centre: Robert Howard inspects the hall roof fence.

Below: The West Range roof, dendro-dated to the late 15th century

RESEARCH THEMES AND PROGRAMMES

A2 D4 E1

THE APETHORPE HALL RESEARCH PROGRAMME

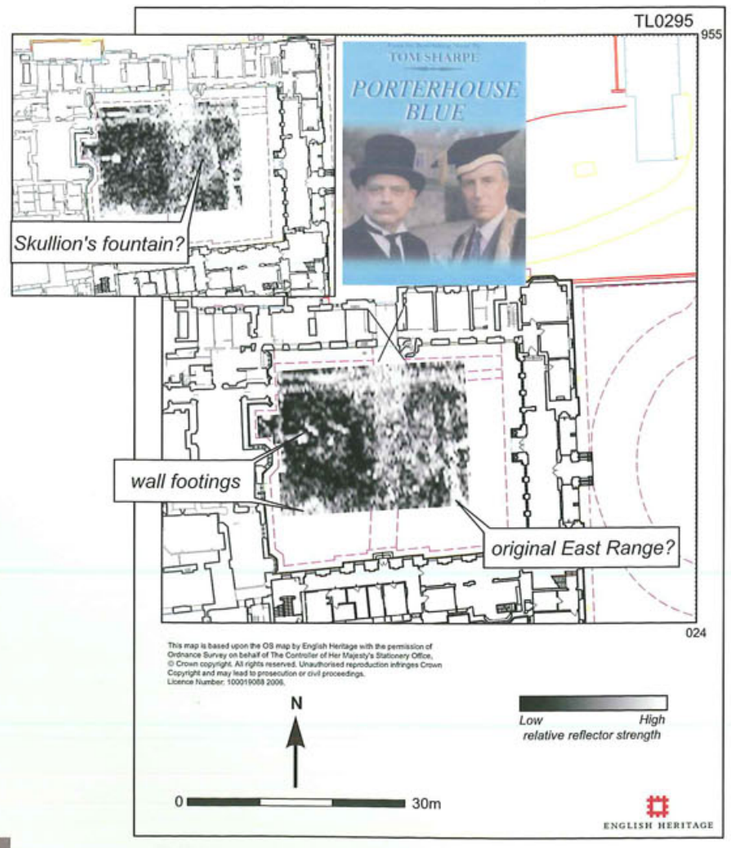
Apethorpe Hall: geophysical survey

Despite the worst efforts of Skullion, geophysical survey has proved useful both inside and out at Apethorpe Hall.

A series of geophysical surveys have been conducted at Apethorpe Hall, including work conducted directly by English Heritage and extensive magnetic and earth resistance coverage over the surrounding land commissioned from external contractors. Much of the work conducted by the Geophysics Team has been closely associated with the evolution of structure of the building in an attempt to answer questions posed by colleagues in the Architectural Investigation Teams.

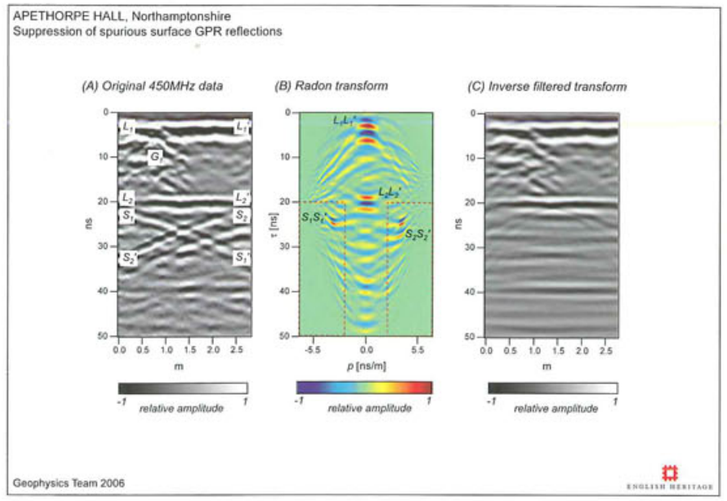
The most promising area for geophysical survey was probably the East Main Courtyard, which is currently laid mainly to grass, making an earth resistance survey both practical and a useful complement to the existing magnetic data when searching for structural remains. However, the complex nature of the expected remains suggested the added vertical resolution of Ground Penetrating Radar (GPR) would be useful both here and essential within the fabric of the building itself. The amplitude time slice from the GPR survey in the East Main Courtyard superimposed over the metric building plan effectively shows the varying strength of GPR reflectors through a thin slice of the ground between 0.675 and 0.75m below the current ground surface. Both the GPR and the earth resistance surveys revealed anomalies associated with the former structure of the Hall, including the putative remains of the original East Range.

Fig 1: Greytone image of the 18 to 20ns GPR amplitude time slice (approximately 0.675 to 0.75m beneath the surface) superimposed over the metric plan of the East Courtyard, revealing wall footings that may be related to an earlier phase of the Hall. The inset figure shows a deeper time slice (0.825 – 0.9m) containing a curious circular anomaly, possibly from a stage prop fountain when the site was used for a film set



A subsequent, slightly deeper time slice from the GPR data (Fig 1) located a curious circular anomaly virtually in the centre of the current courtyard design. Such unexpected anomalies tend to cause great excitement in the field when huddled around the laptop in a welcoming hostelry after a hard day's survey. Could this be an original garden design lost beneath the modern utilitarian concrete paving slabs crossing the courtyard? Whilst this interpretation remains possible, background research revealed alternative explanations from the more recent history of the building when it was used as a film set for film productions, including both *Another Country* and the television adaptation of *Porterhouse Blue* featuring David Jason as the irascible head porter Skullion. Careful scrutiny of the Porterhouse Blue DVD suggests Skullion may be off the hook this time, but further research into the other films that used the Hall for their location is still ongoing. Perhaps excavation next year will be the only means of discovering the true origin of the circular anomaly?

The scaffold erected around the South and East ranges of the building also caused some geophysical problems, both limiting the physical area available for survey and also acting as a very strong surface radar reflector. Unfortunately, some radar energy always leaks out from the antenna and is usually dispersed through the air with little impact on the significant, sub-surface reflections. However, the proximity to the survey area allowed these air-wave reflections to travel from the transmitter to the scaffold and back again to the receiver, where they appear as spurious high amplitude, dipping reflectors in the resulting GPR profiles that can easily be misinterpreted in the final data set. The air-wave anomalies always "rise" in the GPR profile at the end of the lines, due to the shorter travel time between the antenna and the surface reflector, and the angle of dip gives the velocity of the wave front. In air, the velocity of an electromagnetic wave front will approach 0.3m/ns, over four times the average speed of the same energy measured in the ground at Apethorpe (~0.075m/ns).



Similar problems with air-waves were encountered in the confined spaces investigated within the building, particularly where wall mounted panel radiators or other metal objects were present. Fig 2 shows a typical GPR profile containing both horizontal linear anomalies

Fig 2: Spurious surface air-wave reflections present in (A) the original GPR profile are suppressed through the use of a linear Radon transfer. The dipping linear reflections (S_1S_1' and S_2S_2') are clearly distinguished in (B) the Radon transfer and are removed by muting data within the red dashed boxes. Applying an inverse transform (C) retains both significant horizontal reflections (L_1L_1' and L_2L_2') and the response to a possible buried wall (G_1) whilst removing the spurious air-wave energy.

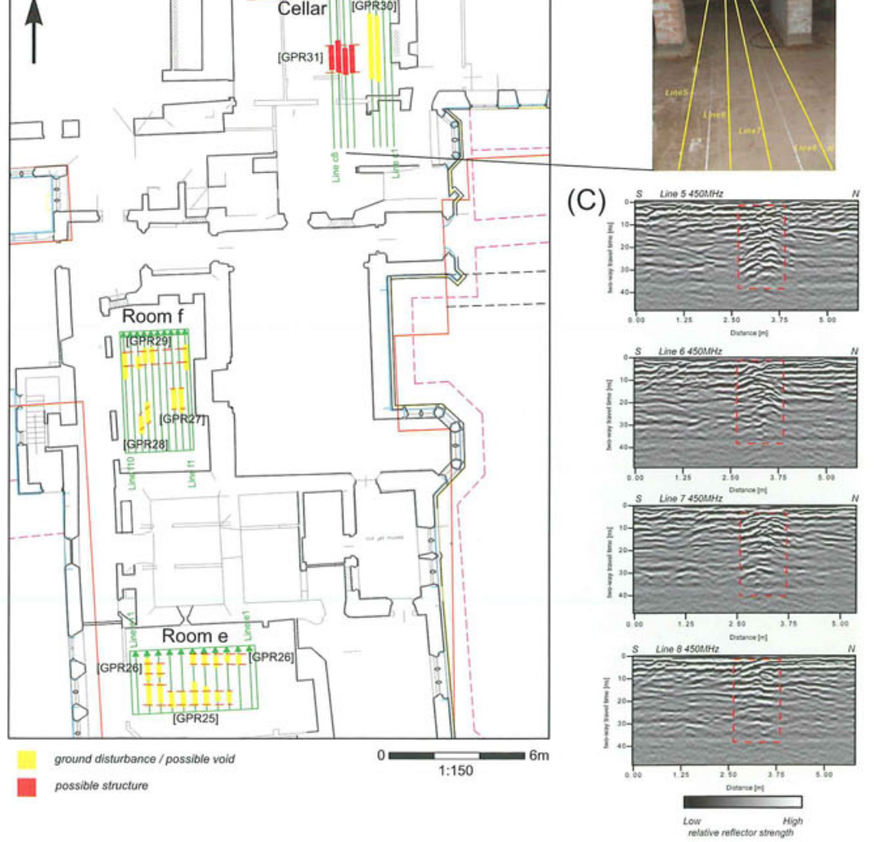


Fig 3: (A) graphical summary of significant GPR anomalies recorded inside rooms e, f and the cellar (B) beneath the North Range. GPR profiles collected from the cellar (C) show a possible wall footing (dashed red box) beneath the concrete floor

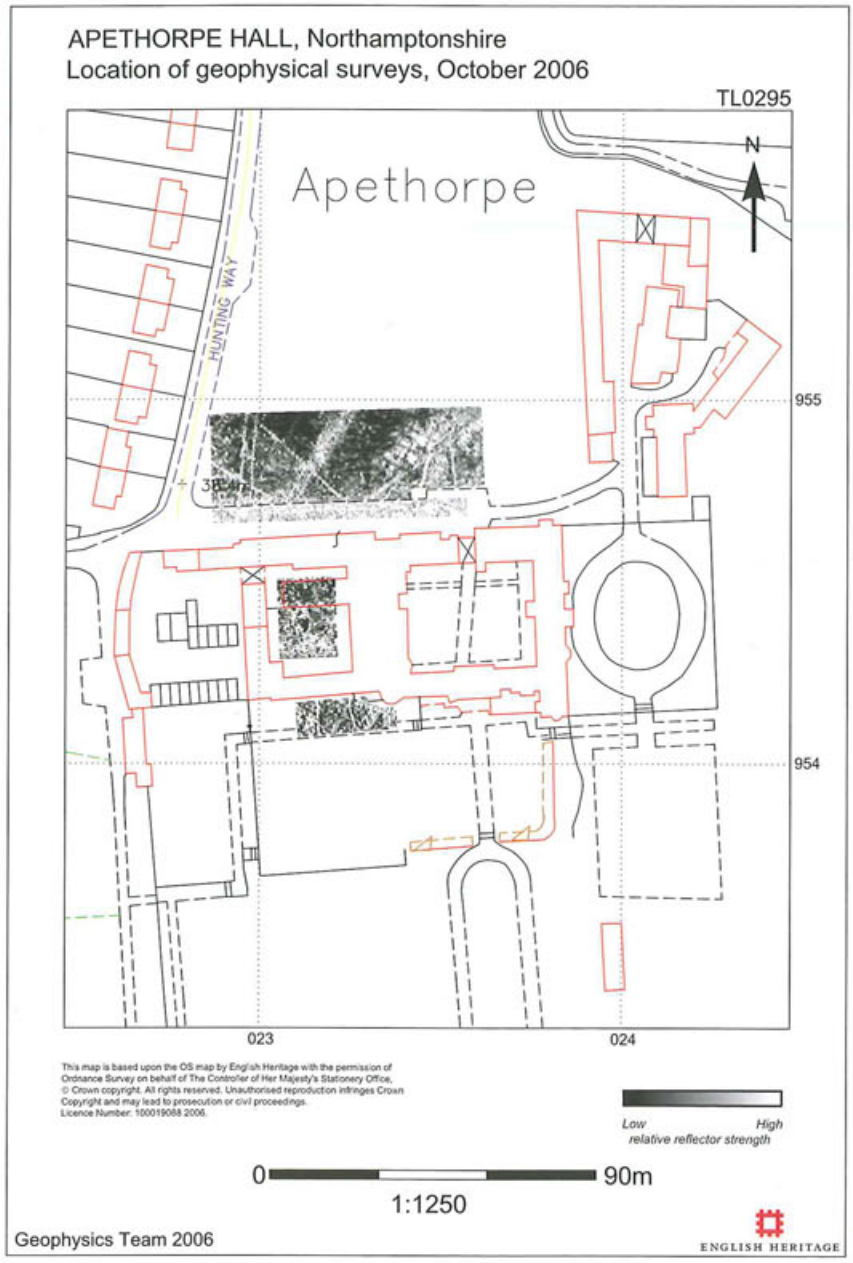


Fig 4: Preliminary results from the GPR survey conducted in October 2006 showing amplitude time slices between 20 and 24ns (approximately 0.75 to 0.9m) collected over the North Lawn, West Courtyard and to the south of the Orangery

together with two spurious air-wave reflections from the walls of the room at either end of the traverse. These spurious reflections were suppressed by the application of a linear Radon transform allowing weaker, more significant anomalies to be identified at the expense of some slight smoothing of the data.

After appropriate data processing, including application of a Radon Transform, useful information could be gained from unpromising parts of the building. For example, Fig 3 shows a series of GPR profiles collected down in the cellar beneath the kitchens in the North Range, where the possible continuation of a truncated section of original walling entering the cellar from the East was revealed.

A second campaign of GPR survey was conducted in October 2006, (Fig 4) and only preliminary results were available before the production of this article. Unfortunately, results from the West Courtyard have been dominated by the response from the class room block recently removed from this area and other modern services. However, results from a much larger area over the North Lawn proved more fruitful and despite replicating the known location of services identified from previous earth resistance and magnetic surveys some additional structures may be tentatively interpreted from the data at this stage.

Neil Linford

© Lord Brassey

This photograph depicts the Duke's Chamber around 1923. The ship on the chimneypiece refers to King James's favourite, the Lord High Admiral, the Duke of Buckingham

The research programme is managed by John Cattell, English Heritage's Chief Buildings Historian, and taken forward by a research team comprising representatives from virtually every section of the Research Department together with regional colleagues, including the Apethorpe Hall Project Director, Nick Hill. The team brings together internal specialists drawn from a wide range of academic and professional disciplines. From the outset it was intended that the research programme should be seen as an exemplar for the multi-disciplinary analysis and investigation of a complex major monument and its landscape. The research team meets at six-weekly intervals, and, in addition to joint fieldwork, these meetings represent the principal forum for the lively exchange of ideas about the interpretation and recording of the site. We have all learnt a great deal from each other and gained a much deeper appreciation of the many benefits arising from working in this way. For those involved it has helped to break down the barriers that have traditionally separated disciplines such as architectural history from, for example, archaeological science. The full range of internal expertise employed at Apethorpe Hall is showcased in the following pages.

In addition to the wide range of internal expertise employed at Apethorpe a number of external specialists have been commissioned to provide advice. These include Dr Claire Gapper who has produced a report on the plasterwork and Dr Jennifer Alexander who has made a highly-illuminating study of the masons' marks appearing on the stonework at Apethorpe. The latter is of considerable interest as it represents the first systematic study of masons' marks on a building of this type and period.

The findings of the research programme were brought together in an English Heritage report published in the Research Department Report Series in February 2007. This will provide much of the raw material for an English Heritage monograph on the site proposed for publication in 2009 following the completion of the English Heritage managed repair programme and the sale of the house. The monograph will be complemented by a range of journal articles on aspects of the research and investigation work at Apethorpe Hall to be published over the next two to three years. The book and many of the articles will benefit from ongoing discoveries emerging out of the repair work and as part of targeted supplementary work, eg phase 2 of the dendrochronology programme.

One important Research Department contribution, archaeological excavation, is missing from this round-up because it is has yet to happen. This is largely a result of the need to wait for the removal of the extensive scaffolding in the main courtyard next year. As Neil Linford points out, geophysical survey in this courtyard suggests that the footings of a previous east range (demolished to make way for the present east range built further to the east in 1622-24) may survive below ground. Targeted archaeological excavations led by the Archaeological Projects section of the Research Department will take place, probably late next summer, to 'ground truth' this area and others where geophysical survey suggests there are below-ground archaeological remains. We hope to include the key findings in the forthcoming monograph.

Our work at Apethorpe has generated a huge amount of interest in the academic world, and among heritage sector groups and the local community. With the recent transfer of the title of the property to English Heritage it is now possible to publicise the research work at Apethorpe as part of an integrated education, outreach, and training programme. The house and grounds will be visited by a wide range of groups, especially amenity societies and local history groups, as well as specialist societies such as the Society of Architectural Historians of Great Britain. There is also considerable interest among local residents and further visits and publicity in local papers is envisaged. An English Heritage members' day visit is planned for April 2007 and the 2007 Heritage Open Days will provide an excellent opportunity to showcase the results of the excavations and to lead tours around the house and grounds. Also, the Research Department section at the Festival of History held in Northamptonshire each August features an exhibition highlighting the latest research findings at Apethorpe. Consideration is being given to using the house and grounds for training courses in building conservation and investigation techniques.

Finally, the research team has been especially privileged to have had unrestricted access to one of England's great houses, an opportunity unavailable to many architectural historians and archaeologists with an interest in buildings and landscapes of this period. It is hoped that the expertise marshalled in the course of the recent research programme at Apethorpe, as well as the methodologies and innovative approaches adopted, will serve as useful models for others engaged in the multi-disciplinary study of complex buildings. Hopefully this research and analysis, the scope of which is presented here for the first time, will act as a springboard for further work on the house and its landscape and will help spark a renewed interest in the study of England's outstanding country house heritage.

John Cattell

Pat Payne, © English Heritage

Research Department staff Nigel Fradgley and Andrew Williams measuring the oriel window in the Great Hall

RESEARCH THEMES AND PROGRAMMES

A2 D4 E1

THE APETHORPE HALL RESEARCH PROGRAMME

Architectural Investigation and Research

Documentary research and fabric analysis enable an understanding of the importance and development of Apethorpe, while specialist studies add rich detail.

Over the last three years, architectural historians and investigators in English Heritage have undertaken, and commissioned, a great deal of research and analysis on Apethorpe Hall, hugely advancing our understanding of this vast and important country house.

Apethorpe Hall was built in the late 15th century, probably in two distinct phases, by Sir Guy Wolston. Alterations and additions were made by subsequent owners in the 16th century, notably by the Keble/Mountjoy family around 1530-40 and by Sir Walter Mildmay around 1560. The most significant part of the house, the state apartment, was enlarged and enriched by Sir Francis Fane, the 1st Earl of Westmorland, in 1622-24, following an order issued by King James I, who was a frequent visitor. In the early 1740s, the 7th Earl decided to remodel the house as a Palladian palace. Only part of this scheme was carried out: the east end of the north range was rebuilt as a Library, while the south range was given a new north façade and a ground-floor 'Arkade'. Little more was done until the 1840s and 50s, when a first-floor conservatory was added and the Jacobean loggias were largely swept away. After Leonard Brassey bought the house in 1904, he commissioned the architect Sir Reginald Blomfield to undertake numerous alterations, some in the guise of restoration work which strove to return the house and its setting to their 17th-century appearance. Further changes were made after 1949, when the house became an approved school. For the last 20 years Apethorpe Hall has stood empty, slowly falling into decay.

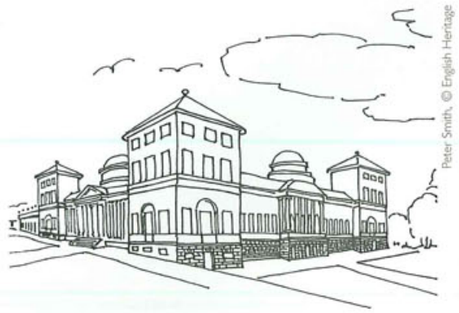
Below left: An unusual view of the service courtyard of Apethorpe Hall, taken from the Orangery roof in 2005 and looking towards the hall. The school dining hall in the courtyard has recently been demolished

Right: A sketch drawing showing how Apethorpe Hall might have looked if it had been rebuilt to the plans devised by the architect Roger Morris for the 7th Earl around 1740

Pat Payne, © English Heritage

The last serious study of Apethorpe Hall was carried out by staff of the Royal Commission on the Historical Monuments of England in the late 1970s and early 80s. The results were published in the *Northamptonshire VI* inventory volume (1984), and in John Heward and Robert Taylor's *The Country Houses of Northamptonshire* (1996). This work has provided a sound basis for the current research project.

Three strands can be identified in the architectural investigation of Apethorpe Hall: documentary research, fabric analysis and specialist studies. These strands are tightly



Peter Smith, © English Heritage

© Lord Brassey

The King's Room.

The King's Chamber, photographed around 1920

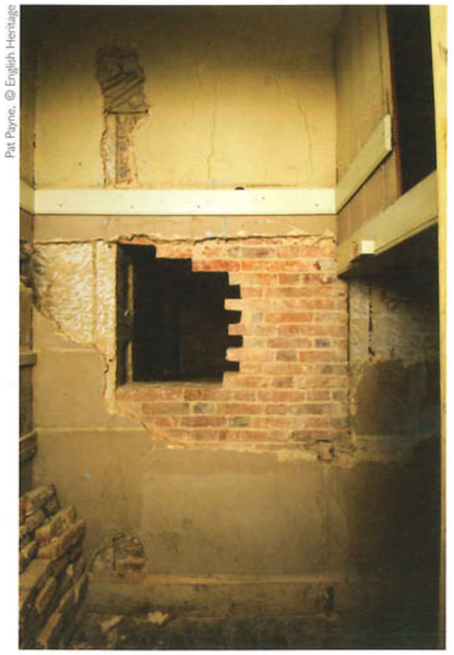
interwoven, with each one serving to make the others more meaningful. The final report of the Research Project Team, to be issued this winter, will demonstrate how the integration of these different approaches has resulted in a fuller comprehension of the house and the previously neglected stable buildings.

DOCUMENTARY RESEARCH

The first approach was necessarily historical research, as English Heritage did not gain access to Apethorpe Hall until autumn 2004. Prior to the handover, much analysis of primary and secondary sources was carried out by Emily Cole (now Head of the Blue Plaques Team/Senior Historian), James Edgar (the Apethorpe Project Leader 2000-04, now Team Leader, P&D East Midlands) and Richard Lea (now a Buildings Analyst in the Properties Presentation Team).

To put this task in context, it should be noted that Apethorpe Hall is relatively poorly documented: the earliest surviving building accounts date from the early 18th century, and the first known topographical views are stylised images on 17th-century maps, and a more accurate view by Tillemans, dated 1721. The historians' work included an analysis of the inventories of Apethorpe Hall, which survive from 1629, 1691, 1705, *c* 1736, 1774 and 1842. These formed the basis of a series of plans that showed the development of the house as it was then understood. Another document which greatly assisted with this process was the Reverend H. K. Bonney's two-volume manuscript history of the house, *Collectanea Apethorpeana*, compiled in 1830-38 but including copies of long-lost architectural drawings dating from the 18th century. Aside from Bonney's copies, the earliest surviving floor plans of the house date from 1858.

Another aspect of the historians' work at this stage was to compare Apethorpe Hall with other Elizabethan and Jacobean houses in order to assess its relative significance. This established the historical importance of Apethorpe as one the houses most visited by King James I, who came here 11 times



Pat Payne, © English Heritage

The recently discovered passage linking the King's Chamber with the Duke's Closet, the duke in question being George Villiers, Duke of Buckingham, favourite of James I

Pat Payne, © English Heritage

This partially uncovered window lit the Great Chamber in the 1560s, and was blocked in the 1740s

between 1604 and 1624. It also established the rarity of the surviving state apartment. Although this incorporates some remnants of older state rooms created in the early 1560s, and was subject to some alteration in the 1740s, the principal rooms were respected and retained by later generations, complete with their plaster ceilings and carved chimneypieces.

FABRIC ANALYSIS

Once Apethorpe Hall was in the hands of English Heritage, it was important to determine the extent of dry rot, damp and structural problems, prior to planning the repair programme. This involved the removal of modern plaster finishes and modern panelling in various parts of the house. A number of architectural features were uncovered in the course of these explorations, adding greatly to our understanding of communications throughout the house, and clarifying the function and status of rooms at different periods. One of the most interesting discoveries was a short passageway leading from the King's Chamber in the south range to the Duke's Closet in the east range. This passageway was blocked at one end in the 1740s, and at the other end in the early 19th century. The jambs at its east end retain some of the earliest paint finishes in the house, being painted white with coloured stripes on the face, and red on the reveals. It was also realised that the modern corridor that runs along the north side of the King's Chamber is an original feature, which was removed in the 18th century, but reinstated by the school in the mid 20th-century. This allowed direct passage from the Withdrawing Chamber to the Back Stair and Long Gallery, without disturbing the occupants of the most private rooms in the state suite.

Amongst other discoveries were three windows belonging to Sir Walter Mildmay's state apartment of 1560-62. These enhance our knowledge of this early apartment, showing that the rooms looked out over a south garden. The windows themselves are possibly the earliest dated examples of ovolo moulded mullions and transoms in Northamptonshire. When they were blocked in the 18th century, they were painted with illusionistic glazing.

In addition to uncovering and interpreting a number of lost features, the architectural investigation has advanced the understanding of the historical development of the house through plain and simple observation. For example, by examining the relationship between the individual components of the complex hall range, from both structural and functional viewpoints, a new theory concerning its chronological development can be put forward. It is likely that the hall itself, which could not be dendro-dated, was built in the 1460s, and is therefore 20 years earlier than previously thought.

SPECIALIST STUDIES

Several specialist studies have been commissioned to enhance and complement the investigation and research. Several are reported in this issue, others have included an assessment of the stone sculpture by Dr Adam White, a geological analysis of the building stones by Dr Diana Sutherland, thermal imaging by Robert Demaus and a study of the usage of the state apartment in the 16th and 17th centuries by Emily Cole. Richard Sheppard is currently examining the timbers of the east range roof (see cover), which have been fully exposed throughout the summer for the repair programme. Future work might involve a study of the Long Gallery panelling, which was constructed in the 1620s with large openings for full-length portraits, and it is possible that excavations undertaken next summer may uncover more exciting evidence of the early form of the house. There is still more to be achieved.

Kathryn A Morrison

Pat Payne, © English Heritage

The late medieval hall, which was probably built in the 1460s by Sir Guy Wolston

RESEARCH THEMES AND PROGRAMMES

D4 F1 G1

THE APETHORPE HALL RESEARCH PROGRAMME

Imaging, Graphics and Survey team's involvement at Apethorpe Hall

Survey, graphics and photography provide essential baseline data for the conservation and research projects.

Imaging, Graphics and Survey team (IGS) is responsible for carrying out exemplary work in the specialisms of surveying, photography and graphics in order to inform and underpin English Heritage's historic environment research and standard setting activities. IGS comprises four specialist teams; Archaeological and Architectural Graphics and Survey, Photography and Metric Survey. The involvement of IGS was crucial to both the programme of essential repairs to the house and in contributing to the integrated programme of research, survey and investigation. The IGS Photographic team continues to be involved in documenting the course of the project.

The project design set as one of the aims that the work at Apethorpe should "serve as a test-bed for inter-disciplinary co-ordination and help mesh together the archaeological and buildings teams making up the new Research Department of English Heritage". In the case of the IGS teams this involved integrating the production of surveyed plans and sections to document the programme of conservation and repair by contractors, with the production of drawings as part of the process of investigation of the structure leading to an understanding of the history of its development. In the event, plans and sections of two wings were externally contracted and the architectural graphics team produced plans and sections of the rest of the house. The ground-floor plan (next page) is the result of the integration of these two branches of architectural survey, normally carried out specifically for these different purposes and at different times. Architectural Investigators, Photographers and Architectural Graphics and Survey team members collaborated to record and illustrate the frieze in the Withdrawing Chamber, discovered preserved behind an inserted coving. Steve Cole describes his contribution to this piece of work below. The work of the IGS teams will contribute greatly in illustrating the proposed report and book.

Bernard Thomason

Section of Hall looking north towards services, surveyed by Architectural Graphics

METRIC SURVEY

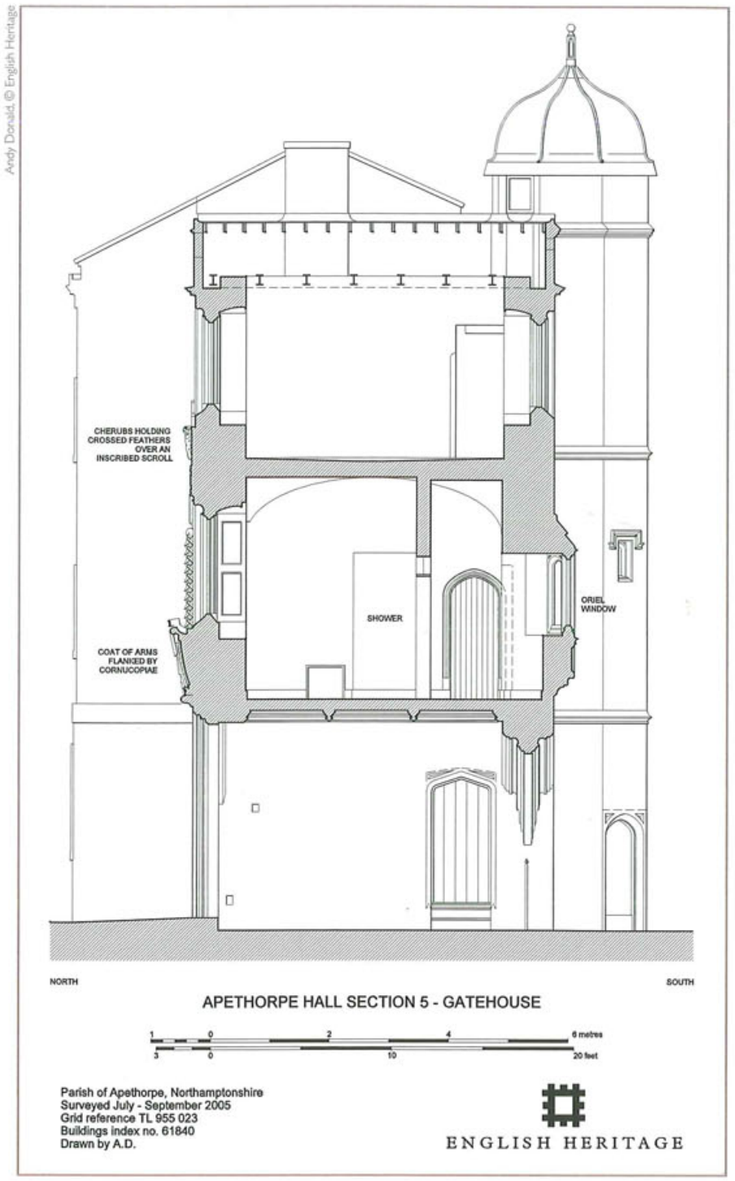
When project director Nick Hill wanted plans and elevations of Apethorpe Hall, for the conservation of the south and east ranges, he first approached the Metric Survey Team which is able to deliver a suite of standard survey products at fixed prices in a matter of a few weeks. At the planning stage of the conservation project, survey comes first as it is the base-map on which all decisions are made. The survey undertaken in respect of the south and east ranges of Apethorpe Hall was the minimum required to plan and cost the repair works:

- *A roof plan showing the falls, up-stands and levels of rain water goods at 1:50 scale*
- *A set of floor plans showing heights, material and layout as found at 1:50 scale*
- *A set of sectional elevations showing heights, material and layout as found at 1:50 scale*
- *Site plan showing services, landscape and heights of hard detail, contours at 1:500 scale*
- *Stone by stone exterior elevations at 1:50 scale*

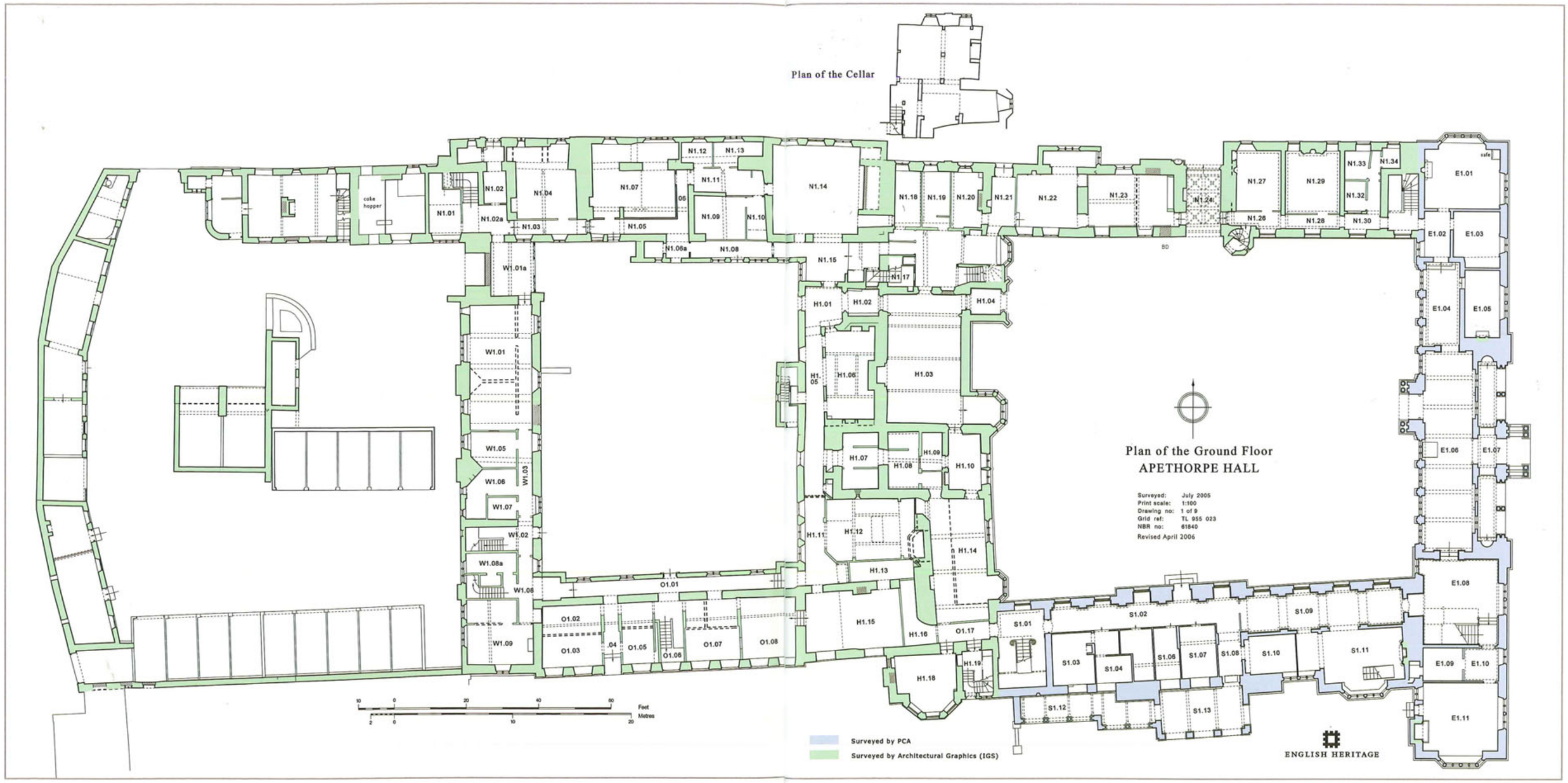
All of these products are available from a number of suppliers who are retained by English Heritage under the framework contract at pre-tendered standards and prices. The advantage of the framework agreement for the supply of metric survey is the ability to estimate prices by product and area from suppliers who can deliver them in an agreed time. At Apethorpe the project director asked for a price breakdown for all available options and then chose the most cost effective for the project.

The selected survey products were costed, programmed and checked by the Metric Survey Team, and perhaps more importantly made available in advance of completion (as preliminary issue) to the project planning team.

The most urgent stages of the project required immediate attention to weatherproofing the structure. To do this roof plans were needed



Section of Gatehouse looking East with 18th Century Library addition behind, surveyed by Architectural Graphics



Plan of the Ground Floor; colour tints indicating the successful combination of the contracted part of the survey with that of the Architectural Graphics team

to schedule the work. Preliminaries of the roof plans were released to the project architect in 8 weeks of survey being commissioned. The roof plans enabled the design of renewed lead work and the recording of the interventions in removing and replacing the roof material.

The most urgent stages of the project required immediate attention to weatherproofing the structure. To do this roof plans were needed to schedule the work. Preliminaries of the roof plans were released to the project architect in 8 weeks of survey being commissioned. The roof plans enabled the design of renewed lead work and the recording of the interventions in removing and replacing the roof material.

Bill Blake

ARCHITECTURAL GRAPHICS AND SURVEY

The Architectural Graphics and Survey Team produced interpretative measured surveys at ground and first-floor level of the hall and north ranges of the main courtyard, together with similar surveys of the buildings enclosing the kitchen court and the service court and added analytical data to the base surveys procured by the Metric Survey team through the framework agreement. The team also produced a range of sections and illustrative material, in a major contribution to the project.

An agreed drawing list was produced in consultation with the project director and the Architectural Investigation Team. The strategy was to produce drawings of two types. The first consisting of record drawings (plans sections and details) available to all other disciplines for further annotation and use as the project progresses. These continue to be updated and enhanced by Architectural Graphics as more historic details are revealed in the course of the protracted repairs programme. The number of sections produced is influenced by the number of major structures and building periods represented, and the positions of the section lines are chosen not necessarily at the mid point of a building range but optimally to convey the most information about the historic structure and development.

East elevation of east range in snow

Pat Payne. © English Heritage

The second type of drawings are synthetic, defined at a later stage when investigation is substantially complete and the focus turns to interpretation and presentation of the findings. At this stage, Architectural Graphics can advise on what type of illustrations will best illustrate and elucidate for the reader key aspects of the building development; scenarios which are often complex and difficult to present textually. Reconstruction drawings, in all the various forms they can take, are obvious examples of this category. The record drawings made during the first stage are also used as the basis for illustrations to explain the development phases of the building.

Nigel Fradgley

PHOTOGRAPHY

The photographic recording work at Apethorpe Hall follows closely the phased acquisition, investigation and repair works to the Hall itself. An initial record to show the condition of the Hall and its associated buildings took place in November 2004. This consisted of exterior and interior views of all the main elevations and principal rooms, notably the State Apartment.

The survey work itself is interesting not only because of the challenges presented by a large, ancient and complicated country house but also because the survey period spanned the photographic team's changeover from conventional recording on film to digital image capture.

The challenge presented by much of the work was access to provide a suitable viewpoint and then to allow lighting. The discovery of a frieze which had been hidden by a later insertion of coving into a chamber brought these two factors to the forefront. The frieze is located between the inserted coving of the Withdrawing Chamber on the first floor and the floor of the attic room above. The surviving remains consist of the frieze itself and a small flat area of ceiling plasterwork cut off from the ceiling when the coving was inserted.

Steve Cole. © English Heritage

Martin Stapleton repairs the wooden panelling from the Long Gallery

Without the removal of the coving below, the frieze could only be photographed in sections. An image of the complete scheme was required so that it could be drawn and used in a reconstruction drawing of the former chamber. A 35mm size Nikon digital camera was used to allow for a viewpoint between the ceiling joists that was low enough to be beneath the overhang of the coving and sufficiently far away from the frieze to allow capture of each complete section.

Each section was photographed by wedging myself between the joists and hand holding the camera (resting it gently on the lathes of the ceiling) at approximately the same distance from the frieze. Wherever possible light was introduced from the right of the camera in each shot to provide consistent relief of highlight and shadow across the plasterwork. The frieze is terminated at either end by a cherub. It was not possible to photograph the cherub at the right hand side due to obstructions. This was overcome later in the computer by reversing the image of the leftmost cherub and aligning it with the other plasterwork sections. Some other views of the flat area of the ceiling were also taken to show the bosses and strapwork decoration.

Whilst the image is far from perfect in itself, it does provide enough information to allow my colleague in Architectural Graphics to draw up a reconstructed scheme and to visualise this in a reconstruction of the earlier chamber.

The work of the photography department continues at Apethorpe; during the conservation phase of the project we are there capturing the work of the craftsmen and women working to conserve and safeguard this important building.

Steve Cole

An elevation of the tympanum was produced after some enhancements on computer

Combined image of remains of earlier frieze or tympanum over King's Chamber

Steve Cole. © English Heritage

THE APETHORPE HALL RESEARCH PROGRAMME

Understanding the Jacobean ceilings

The series of elaborate early 17th-century ceilings in the state apartment, created for King James I, is a rare and precious survival.

Amongst the most significant features of Apethorpe Hall are the elaborate plaster ceilings of the first-floor rooms that once constituted the state apartment. These ceilings impart an indisputable magnificence to the state rooms, even in their present forlorn state. They were made in 1622-24, and would have been admired by King James I when he last visited Apethorpe in 1624.

When English Heritage took on responsibility for Apethorpe Hall in Autumn 2004, it was evident that the ceilings required painstaking conservation work. At that time they were largely hidden by protective scaffolding. Already, parts of cornices had been lost, and cracks and damp patches were apparent. Nevertheless, from an historical point of view the ceilings seemed to pose few problems.

Pat Payne, © English Heritage

The ceiling in the King's Chamber adopted a novel form with a flat centre (decorated with the royal arms), surrounded on all sides by deep coving. This photograph was taken after the ceiling had been cleaned, and 1970s paint removed

It was generally accepted that the most intricate, those in the Great Chamber, the Withdrawing Chamber, the King's Chamber and the Duke's Chamber dated in their entirety to the 1620s, while some doubts lingered over the authenticity of the plainer ceilings in the Long Gallery and the corridor that bypasses the King's Chamber. To pronounce on this issue, and to provide a general assessment of the ceilings from an art historical point of view, the Research Team called on the expertise of Dr Claire Gapper.

Since completing her doctoral thesis entitled 'Plasterers and Plasterwork in City, Court and Country, *c* 1530-1640' Claire has become established as the foremost expert on early modern plasterwork in England. She has examined the ceilings of many country houses, and provided advice for a wide range of heritage bodies and private house owners, for example at Sizergh Castle and Hatfield House. At Apethorpe, Claire's specialist knowledge, combined with the fabric analysis undertaken by the English Heritage Research Team, has considerably advanced our understanding of the ceilings. With her help it was possible to establish that the relatively simple Long Gallery and King's Chamber Corridor ceilings are, indeed, original work of the 1620s. They copy a design published by Serlio which became extremely popular in late 16th and early 17th century England recurring, for example, at Canons Ashby in Northamptonshire (*c* 1600), and in Inigo Jones's House of Lords (1624-25). According to Claire, 'one could view Apethorpe's gallery, which provides a striking contrast to the other state rooms, as moving towards the more chaste, classical mode espoused by Jones'. Ceiling design was entering a time of transition.

A much more complex puzzle was offered by the discovery, beneath the attic floors, of

Pat Payne, © English Heritage

Dr Claire Gapper in the Great Chamber. The coving and cornice, inserted in the 1740s, were closely examined in the course of the restoration work

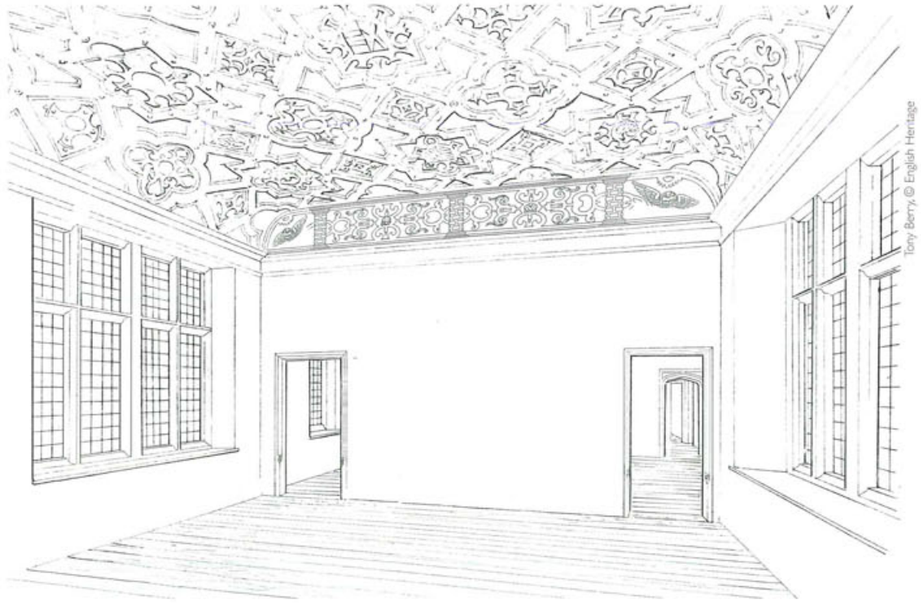
two plaster friezes or tympana which had once adorned the short end walls of the Great Chamber and Withdrawing Chamber, but were now concealed behind apparently contemporary coving. Were they remnants of earlier ceilings? Did they represent a preliminary scheme, perhaps a mistake on the part of the plasterers that was quickly rectified in 1622-24? Or did they indicate some serious intervention by a later generation?

Fabric analysis eventually demonstrated that the newly-discovered friezes are, indeed, part of the original 1620s ceilings, and that they were concealed behind new coves in the 1740s. At that time, John Fane, 7th Earl of Westmorland, was remodelling the ground floor of the south range, and rebuilding the north elevation, as part of an abortive scheme to transform Apethorpe Hall into a Palladian villa. Various structural alterations, including the removal of a transverse wall, caused the loss of part of the original ceilings, something rectified by the creation of new coves. These were installed with the utmost care, with almost imperceptible joints, and stylistically in keeping with the work of the 1620s. This fascinating discovery emphasises the significance assigned by the 18th-century owners to their historic state apartment; it highlights the value they placed on preserving the character of rooms which had once received royal guests, and which were already, undoubtedly, a showpiece for visitors. The almost antiquarian approach evinced in the treatment of the ceilings is something that can be detected in the alterations and additions of other generations at Apethorpe, from the 17th to the 20th centuries.

Claire Gapper readily acknowledges the national importance of the Apethorpe ceilings. She says: 'It is incredibly rare for a complete suite of decorative ceilings to survive from this period. The closest parallels are the ceilings of Blickling Hall in Norfolk and Aston Hall in Birmingham, both of which survive, and those of Albyns in Essex, which has been demolished'. Although the identity of the Apethorpe plasterer is not known, 'like

Pat Payne, © English Heritage

The ceiling of the Long Gallery is based on a pattern published by Serlio. When this photograph was taken the restoration of the 17th-century panelling had already begun



Tony Berry, © English Heritage

This drawing reconstructs the original form of the Withdrawing Chamber ceiling (east end). It also shows a recently uncovered doorway (that on the right) which gave direct access to the King's Chamber. The drawing is the result of a combination of photographic research and architectural graphics expertise provided by the IGS team (see previous article)

Blickling and Aston Hall, the ceilings can be placed in the framework of the "London" style that emerged in the 1620s and may be by Edward Stanyon'. As Edward Stanyon came from the nearby village of Nassington, and had previously worked with the Apethorpe master mason on at least three other houses, this is a convincing attribution. As to the original finish of the plasterwork, Claire suggests that whitewash would have been the preferred final coat, 'this seems to be confirmed by the recently discovered tympana, which have no trace of colour on their surfaces'. This has been corroborated by paint analysis by Helen Hughes of English Heritage, who confirms that no early colour can be found, even on the royal arms in the King's Chamber.

Eventually, Claire will publish a full account of the Apethorpe plasterwork, including the discovery of the friezes and an explanation of the work undertaken in the 1740s.

Kathryn A Morrison

Steve Cole, © English Heritage

A detail of the recently discovered Withdrawing Chamber frieze. To the right of the rusticated pilaster is a cherub's wing

The recording of the masons' marks

Masons' marks show a hierarchy of specialist workers and allow comparison with other buildings.

One of several stand-alone studies that have combined to enhance our understanding of Apethorpe Hall, is the recording and analysis of the masons' marks, commissioned in winter 2005-06 from Dr Jennifer S. Alexander. Jenny Alexander is an architectural historian who has taught for many years at the University of Nottingham, and is well known as a specialist in the study of masons' marks, primarily on medieval ecclesiastical buildings. Over the last 20 years she has developed a rigorous methodology for recording masons' marks, and has used the evidence they present to illuminate the phasing of significant medieval buildings, such as Southwell Minster. The work at Apethorpe is the first attempt to adapt this methodology to a post-medieval structure, and has produced ground-breaking results.

So what are masons' marks? Essentially, they are marks incised using a chisel or a punch by banker masons who shaped blocks of building stone. This practice is ancient, and has been part of the construction process since at least the Bronze Age. Marks were made for various reasons which are rarely, if ever, documented. Their purpose must always be deduced from a study of the marks themselves, and the buildings on which they appear. Setting aside quarry marks and assembly marks, which have very specific practical functions, banker marks often seem to record the output of individual masons who were paid by the block (ie: task work), rather than by wages. It is also likely that a master mason controlling a large workshop would have needed to identify the authorship of individual blocks as a means of quality control.

By the early 17th century, in contrast with preceding centuries, marks could be conspicuously displayed as a form of trademark. There was still no registration system for masons' marks in England, but a number of contracts and other documents bearing masons' marks survive from this period.

In at least one recent case, an English monument has been attributed to a named mason because it displays a mark which has been found in a document. However, the potency of masons' marks as a tool for the architectural historian becomes most apparent when we move away from the desire to attribute works to individual named masons, and learn to use them to identify groups of masons (workshops), to elucidate working practices, and to phase and date buildings.

Some of the early 16th-century elements of Apethorpe Hall bear masons' marks, but too few to be significant. It is the work of 1622-24 – namely, Sir Francis Fane's new east range and his remodelled south range – that displays a particularly large number of marks, making it especially fruitful to study, with results that have implications for the understanding of other early modern buildings. The recording of these masons' marks was undertaken methodically, taking advantage of the

Pat Payne, © English Heritage

Dr Jennifer Alexander examining the overmantel in the King's Chamber for masons' marks